

OHIO

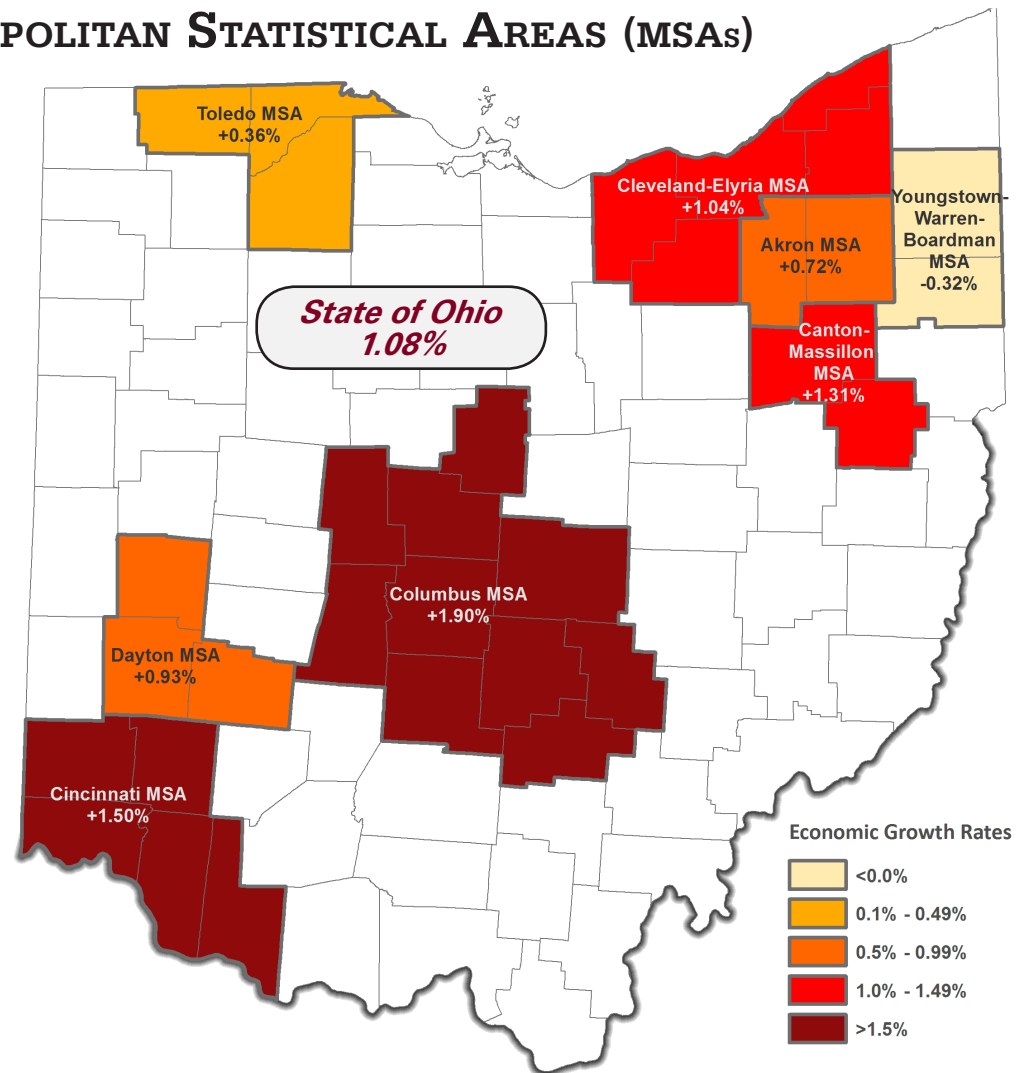
LEADING INDICATORS

MAY 2019

PREDICTED ANNUALIZED GROWTH RATES FOR OHIO AND SELECT METROPOLITAN STATISTICAL AREAS (MSAs)

The Ohio Leading Indicators report uses an annualized growth rate to forecast employment growth for Ohio and its eight largest MSAs for the next six months. The model examines seasonally adjusted total nonfarm employment. These data are seasonally adjusted by the leading indicators model and should not be compared to other seasonally adjusted data.

Ohio's forecasted May 2019 annualized employment growth rate is 1.08 percent. The following MSAs are also predicted to grow: the Toledo MSA at 0.36 percent; the Akron MSA at 0.72 percent; the Dayton MSA at 0.93 percent; the Cleveland-Elyria MSA at 1.04 percent; the Canton-Massillon MSA at 1.31 percent; the Cincinnati MSA at 1.50 percent; and the Columbus MSA at 1.90 percent. The Youngstown-Warren-Boardman MSA has a negative annual growth rate projected at -0.32 percent.

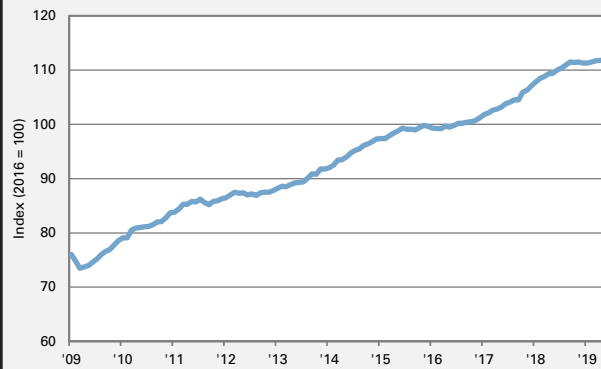


LEADING INDICATORS AND COMPONENTS

UNITED STATES

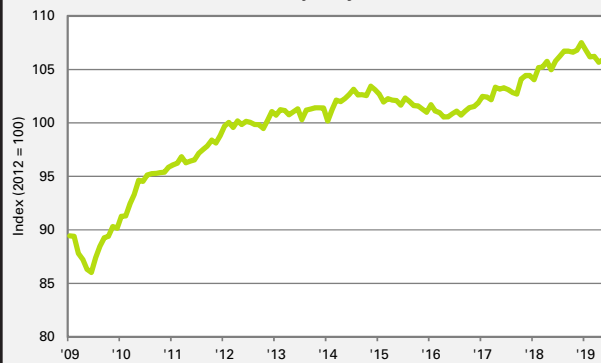
The U.S. Composite of Leading Indicators did not change over the month but increased 2.2 percent over the year. The U.S. industrial production in manufacturing increased 0.2 percent over the month and 0.9 percent from May 2018.

U.S. COMPOSITE OF LEADING INDICATORS
(Seasonally Adjusted)



Source: The Conference Board

U.S. INDUSTRIAL PRODUCTION: MANUFACTURING
(Seasonally Adjusted)

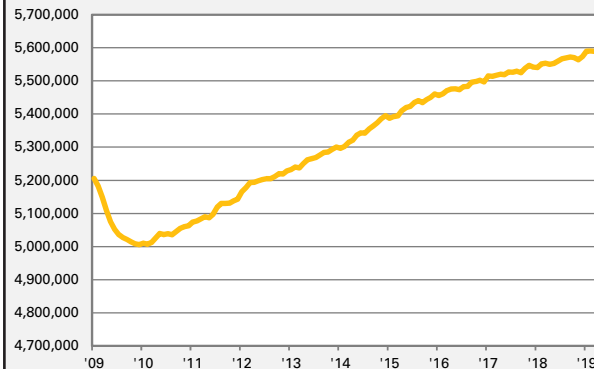


Source: Board of Governors of the Federal Reserve System

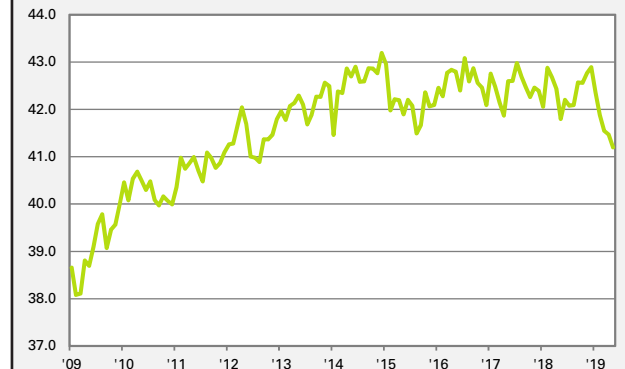
OHIO

Ohio's seasonally adjusted total nonfarm employment was 5,588,900 in May 2019, unchanged over the month but up 0.6 percent over the year. Initial unemployment claims increased 10.7 percent from April and 13.3 percent over the year. Ohio's average manufacturing hours decreased by 0.7 percent to 41.2 hours per week. Housing permit valuation decreased 15.2 percent from the previous month and 31.0 percent from one year ago.

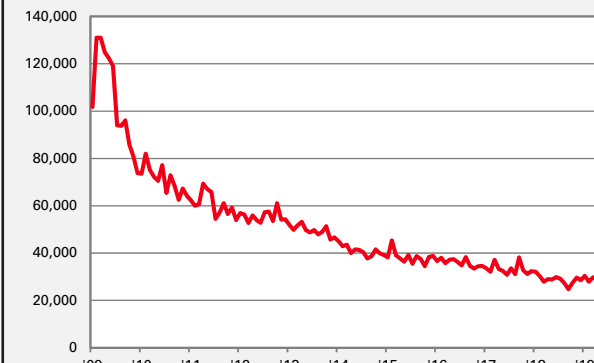
OHIO TOTAL NONFARM EMPLOYMENT
(Seasonally Adjusted)



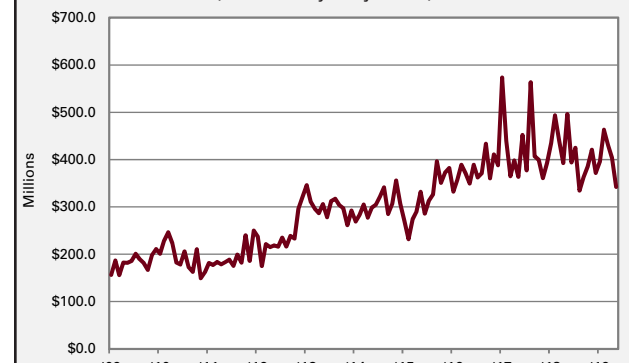
OHIO MANUFACTURING HOURS
(Seasonally Adjusted)



OHIO INITIAL CLAIMS FOR UNEMPLOYMENT INSURANCE
(Seasonally Adjusted)



OHIO VALUATION OF HOUSING PERMITS
(Seasonally Adjusted)



LEADING INDICATORS AND COMPONENTS

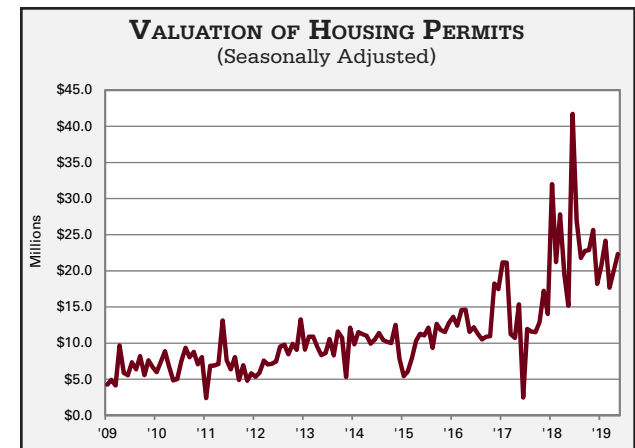
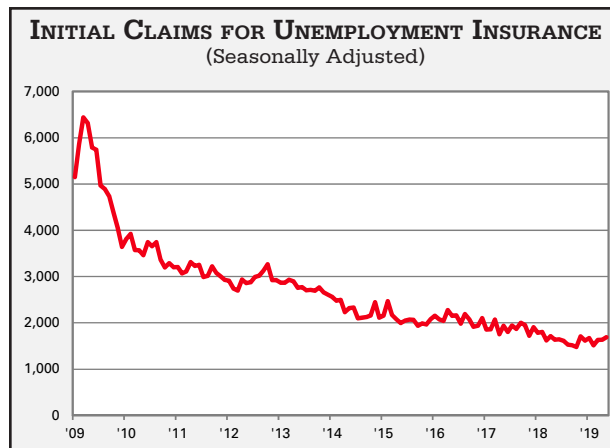
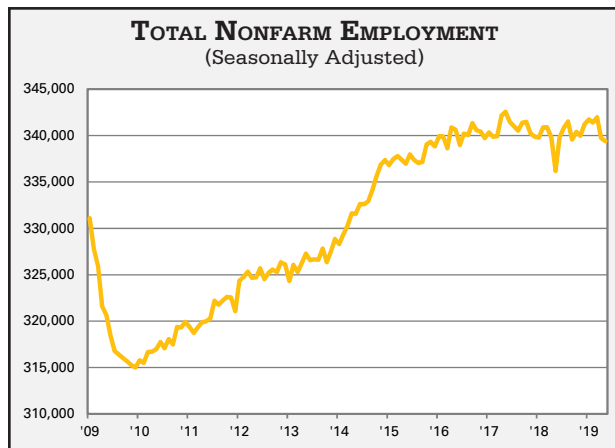
UNITED STATES	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
U.S. Composite Index of Leading Indicators (2016 = 100) (Seasonally Adjusted)	109.4	110.0	110.4	110.9	111.5	111.4	111.5	111.3	111.3	111.5	111.7	111.8	111.8	0.0%	2.2%
U.S. Industrial Production: Manufacturing (2012 = 100) (Seasonally Adjusted)	105.0	105.8	106.2	106.7	106.7	106.6	106.8	107.5	106.8	106.2	106.2	105.7	105.9	0.2%	0.9%
OHIO	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	5,553.1	5,560.3	5,567.1	5,569.8	5,572.5	5,570.3	5,564.0	5,573.7	5,589.6	5,590.5	5,589.1	5,588.2	5,588.9	0.0%	0.6%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	28,855	29,800	29,229	27,238	24,766	27,426	29,651	28,575	30,362	27,960	29,729	29,527	32,693	10.7%	13.3%
Average Weekly Hours for Manufacturing (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$496.1	\$393.9	\$425.2	\$334.7	\$362.8	\$385.3	\$420.8	\$371.7	\$395.3	\$463.0	\$430.5	\$403.8	\$342.4	-15.2%	-31.0%

AKRON METROPOLITAN STATISTICAL AREA

Portage and Summit Counties

The leading indicator for the Akron metropolitan area for May 2019 forecasts employment growth at an annual rate of 0.72 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 339,400 in May, down 0.1 percent from April.

The number of initial claims for unemployment insurance in May was 1,690 claims, more than the number of claims filed last month and last year. The valuation of permits for new housing construction in May was \$22.3 million, an 11.5 percent increase from April and a 46.7 percent increase from one year ago.



AKRON	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	336.2	339.8	340.8	341.5	339.6	340.4	340.0	341.2	341.7	341.4	342.0	339.7	339.4	-0.1%	1.0%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	1,636	1,643	1,611	1,532	1,514	1,479	1,710	1,615	1,672	1,516	1,633	1,636	1,690	3.3%	3.3%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$15.2	\$41.7	\$27.0	\$21.8	\$22.8	\$22.9	\$25.6	\$18.2	\$20.8	\$24.2	\$17.7	\$20.0	\$22.3	11.5%	46.7%
Average Weekly Hours for Manufacturing* (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%

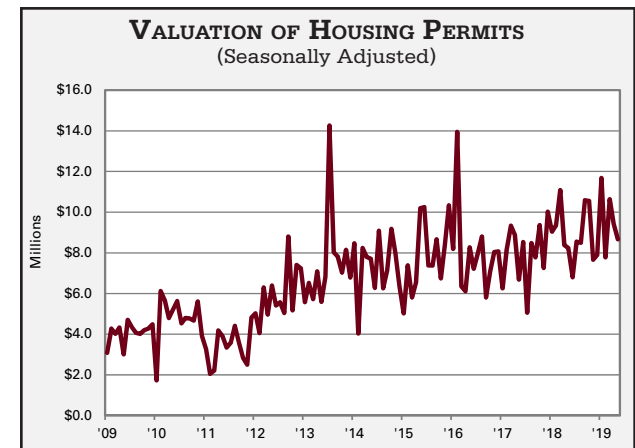
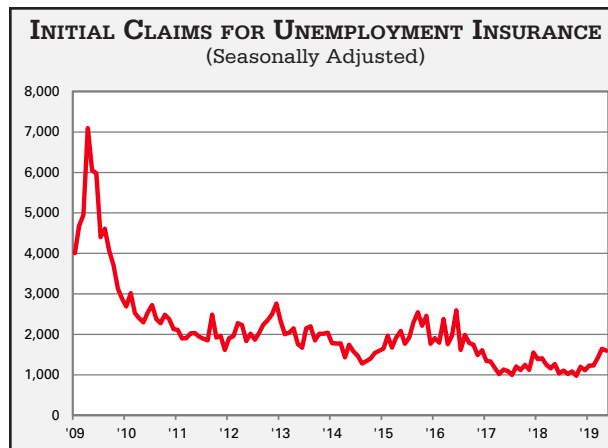
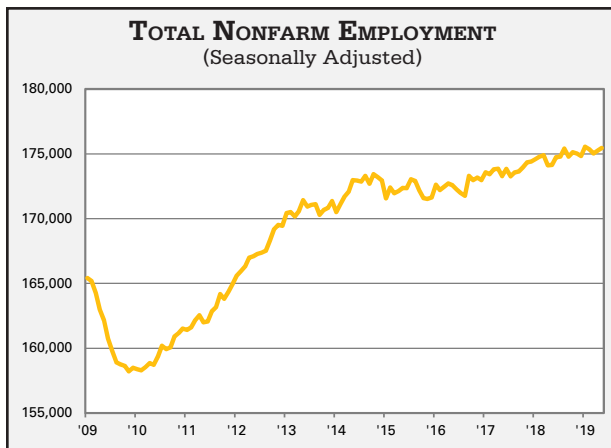
*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.

CANTON-MASSILLON METROPOLITAN STATISTICAL AREA

Carroll and Stark Counties

The leading indicator for the Canton-Massillon metropolitan area for May 2019 forecasts employment growth at an annual rate of 1.31 for the next six months. Seasonally adjusted nonfarm payroll employment was 175,400 in May, up 0.1 percent from April.

The number of initial claims for unemployment insurance in May was 1,598 claims, 2.9 percent less than the number of claims filed last month and 26.2 percent more than last year. The valuation of permits for new housing construction in May was \$8.7 million, a 7.4 percent decrease from April but a 6.1 percent increase from one year ago.



CANTON	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	174.1	174.7	174.8	175.4	174.8	175.1	175.0	174.8	175.5	175.4	175.0	175.2	175.4	0.1%	0.7%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	1,266	1,037	1,104	1,026	1,082	979	1,197	1,113	1,230	1,230	1,421	1,645	1,598	-2.9%	26.2%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$8.2	\$6.8	\$8.5	\$8.5	\$10.6	\$10.5	\$7.7	\$7.9	\$11.7	\$7.8	\$10.6	\$9.4	\$8.7	-7.4%	6.1%
Average Weekly Hours for Manufacturing* (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%

*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.

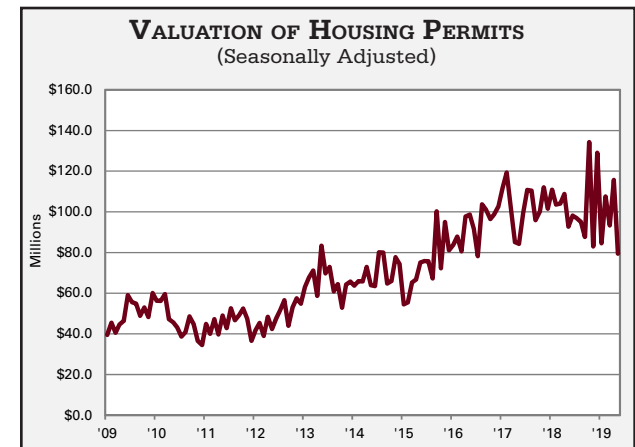
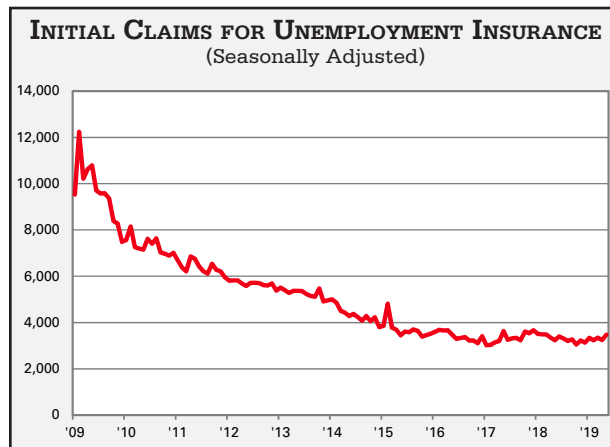
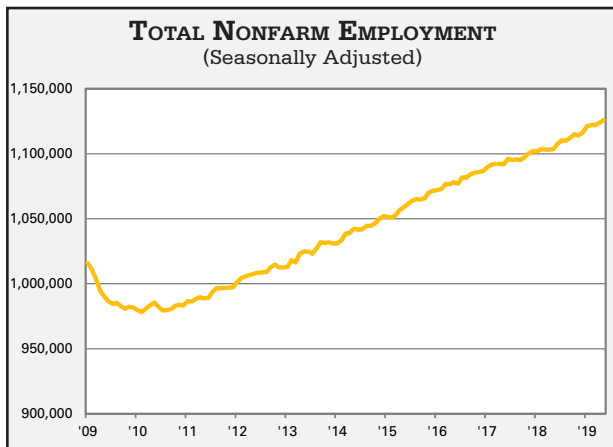
CINCINNATI METROPOLITAN STATISTICAL AREA

Brown, Butler, Clermont, Hamilton, and Warren Counties

This MSA also includes counties in Indiana and Kentucky (see page 12)

The leading indicator for the Cincinnati metropolitan area for May 2019 forecasts employment growth at an annual rate of 1.50 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 1,125,900 in May, an increase of 0.2 percent from April.

The number of initial claims for unemployment insurance in May was 3,240 claims, 7.4 percent more than the number of claims filed last month and 7.6 percent more than last year. The valuation of permits for new housing construction in May was \$79.5 million, a 31.2 percent decrease from April and a 14.2 percent decrease from one year ago.



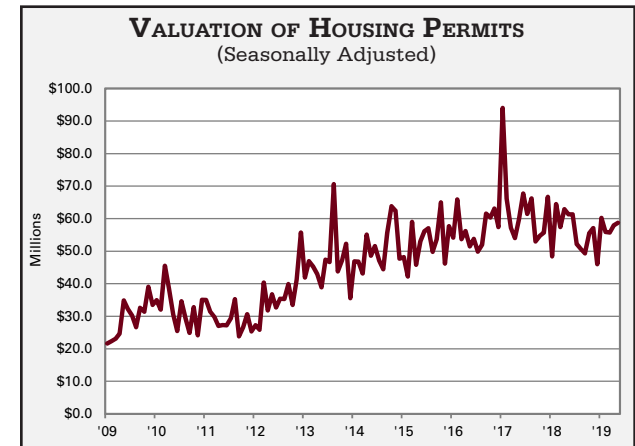
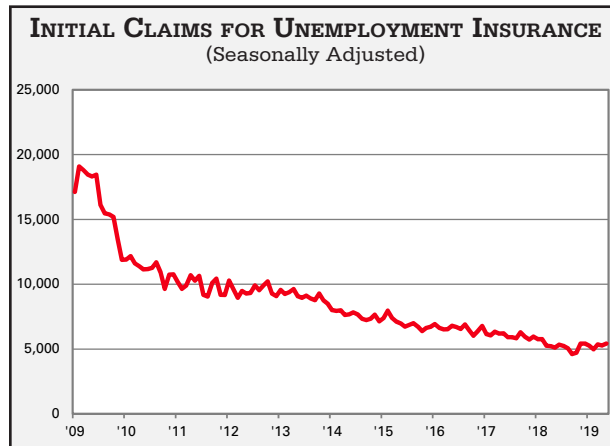
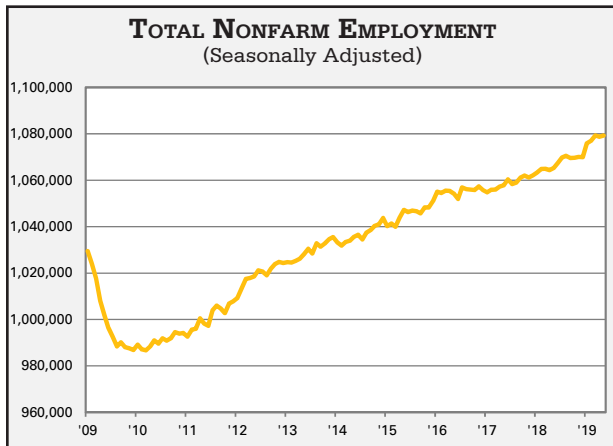
CINCINNATI	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	1,103.8	1,107.8	1,110.3	1,110.2	1,112.4	1,115.0	1,113.9	1,116.3	1,121.2	1,122.0	1,122.1	1,123.6	1,125.9	0.2%	2.0%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	3,232	3,398	3,305	3,206	3,277	3,048	3,229	3,136	3,334	3,240	3,347	3,240	3,478	7.4%	7.6%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$92.7	\$98.1	\$96.9	\$94.9	\$87.7	\$134.3	\$83.0	\$129.0	\$84.6	\$107.6	\$93.3	\$115.6	\$79.5	-31.2%	-14.2%
Average Weekly Hours for Manufacturing (Seasonally Adjusted)	43.9	45.2	44.9	45.3	45.4	45.2	45.0	44.8	44.9	45.4	44.6	44.7	44.5	-0.4%	1.4%

CLEVELAND-ELYRIA METROPOLITAN STATISTICAL AREA

Cuyahoga, Geauga, Lake, Lorain, and Medina Counties

The leading indicator for the Cleveland-Elyria metropolitan area for May 2019 forecasts employment growth at an annual rate of 1.04 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 1,079,300 in May, a 0.1 percent increase from April.

The number of initial claims for unemployment insurance in May was 5,413 claims, 2.9 percent more than the number of claims filed last month and 5.9 percent more than last year. The valuation of permits for new housing construction in May was \$58.7 million, a 1.2 percent increase from April and a 4.2 percent decrease from one year ago.



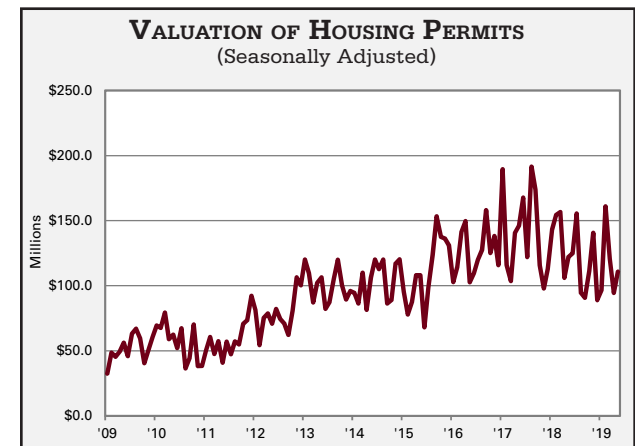
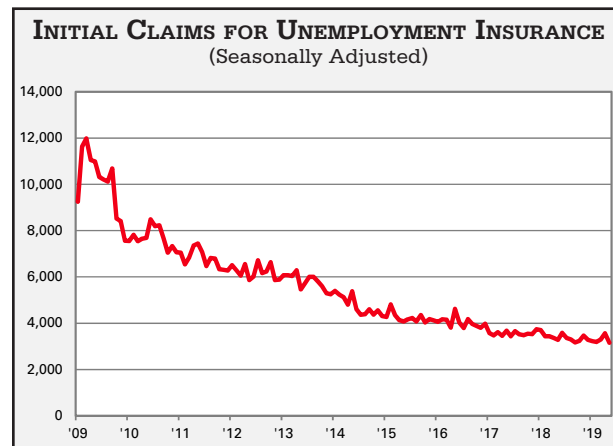
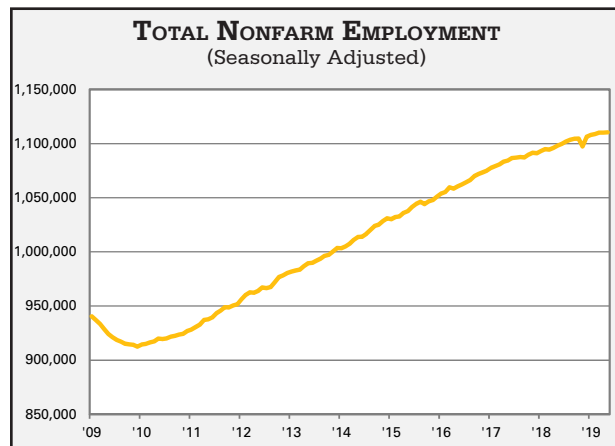
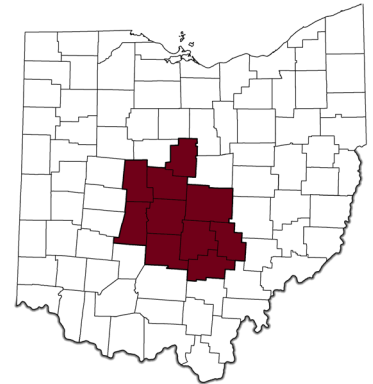
CLEVELAND	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	1,065.3	1,067.4	1,069.8	1,070.5	1,069.6	1,069.7	1,070.1	1,069.9	1,075.9	1,077.0	1,079.3	1,078.7	1,079.3	0.1%	1.3%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	5,113	5,340	5,233	5,060	4,607	4,714	5,419	5,417	5,247	4,974	5,347	5,262	5,413	2.9%	5.9%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$61.3	\$61.3	\$52.2	\$50.6	\$49.4	\$55.5	\$57.1	\$46.0	\$60.2	\$55.9	\$55.7	\$58.0	\$58.7	1.2%	-4.2%
Average Weekly Hours for Manufacturing (Seasonally Adjusted)	43.1	43.5	43.1	43.4	43.1	43.0	43.2	43.1	40.7	40.8	40.5	40.8	41.0	0.5%	-4.9%

COLUMBUS METROPOLITAN STATISTICAL AREA

Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Morrow, Perry, Pickaway, and Union Counties

The leading indicator for the Columbus metropolitan area for May 2019 forecasts employment growth at an annual rate of 1.90 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 1,110,400 in May, unchanged from April.

The number of initial claims for unemployment insurance in May was 3,156 claims, less than the number of claims filed last month and last year. The valuation of permits for new housing construction in May was \$110.8 million, 17.2 percent more than April and 9.3 percent less than one year ago.



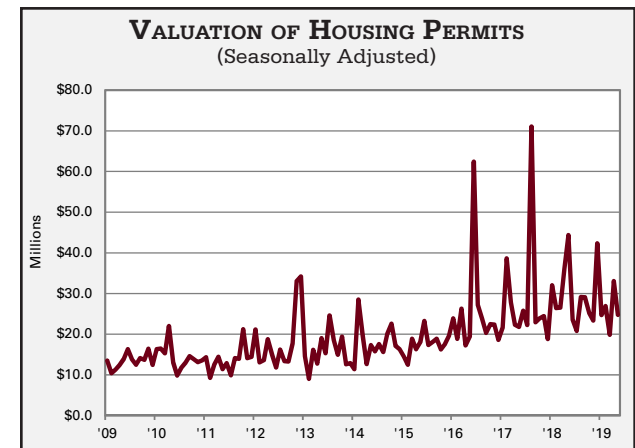
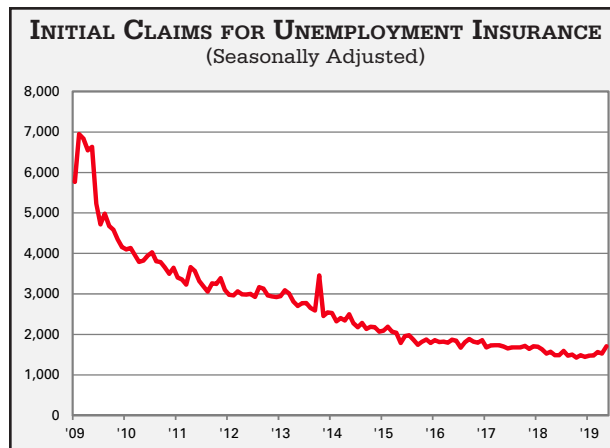
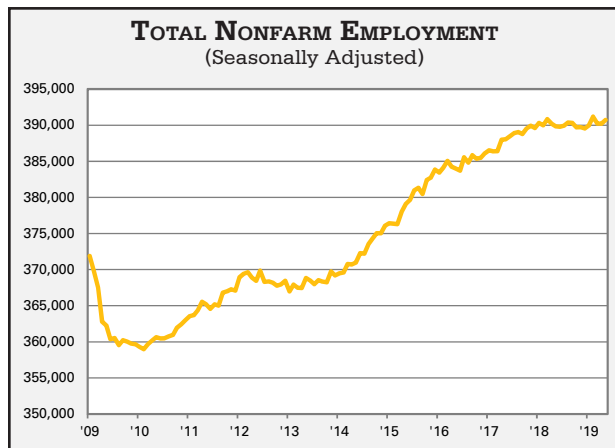
COLUMBUS	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	1,098.1	1,099.7	1,102.0	1,103.4	1,104.4	1,104.7	1,097.4	1,106.5	1,107.9	1,108.8	1,110.1	1,110.1	1,110.4	0.0%	1.1%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	3,286	3,582	3,364	3,301	3,171	3,232	3,461	3,284	3,226	3,189	3,304	3,566	3,156	-11.5%	-3.9%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$122.1	\$124.9	\$155.4	\$94.4	\$90.8	\$111.3	\$140.5	\$89.0	\$96.5	\$161.1	\$120.7	\$94.5	\$110.8	17.2%	-9.3%
Average Weekly Hours for Manufacturing (Seasonally Adjusted)	39.3	40.6	38.3	40.7	42.1	42.4	42.8	41.6	39.8	40.7	41.4	40.7	41.8	2.7%	6.4%

DAYTON METROPOLITAN STATISTICAL AREA

Greene, Miami, and Montgomery Counties

The leading indicator for the Dayton metropolitan area for May 2019 forecasts employment growth at an annual rate of 0.93 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 390,700 in May, a 0.1 percent increase from April.

The number of initial claims for unemployment insurance in May was 1,707 claims, 11.6 percent more than the number of claims filed last month and 14.8 percent more than last year. The valuation of permits for new housing construction in May was \$24.7 million, a 25.2 percent decrease from April and a 44.4 percent decrease from May 2018.



DAYTON	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	389.8	389.8	389.9	390.4	390.3	389.7	389.7	389.6	390.0	391.2	390.2	390.2	390.7	0.1%	0.2%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	1,487	1,487	1,593	1,476	1,501	1,429	1,490	1,446	1,476	1,484	1,564	1,530	1,707	11.6%	14.8%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$44.4	\$23.6	\$20.8	\$29.1	\$29.1	\$25.2	\$23.4	\$42.3	\$24.7	\$26.9	\$19.8	\$33.0	\$24.7	-25.2%	-44.4%
Average Weekly Hours for Manufacturing* (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%

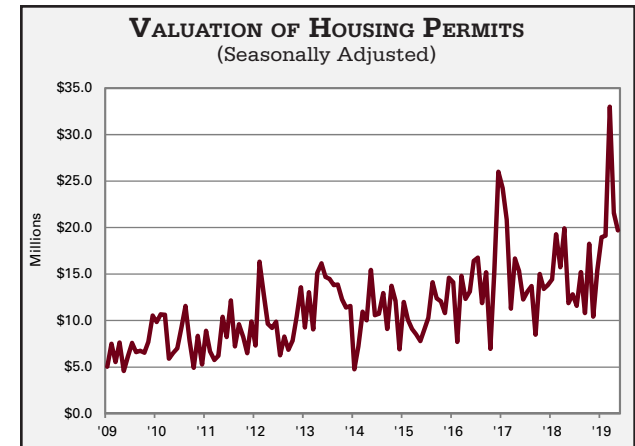
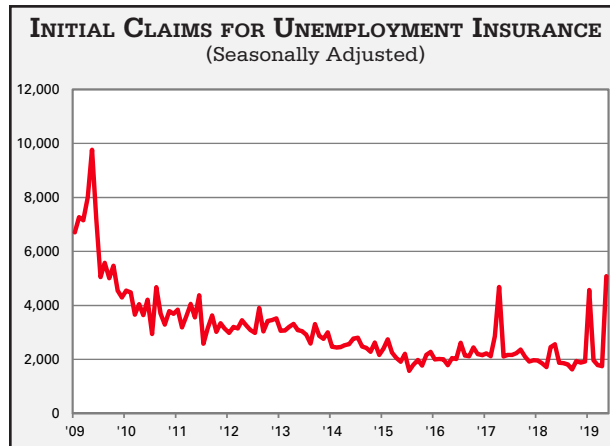
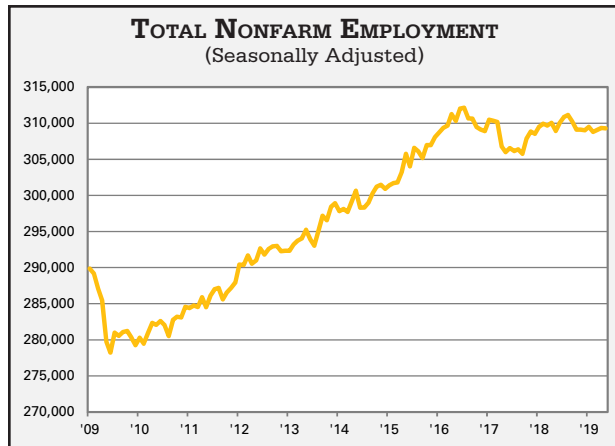
*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.

TOLEDO METROPOLITAN STATISTICAL AREA

Fulton, Lucas, and Wood Counties

The leading indicator for the Toledo metropolitan area for May 2019 forecasts employment growth at an annual rate of 0.36 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 309,300 in May 2019, unchanged from April.

The number of initial claims for unemployment insurance in May was 5,087 claims, 190.9 percent more than the number of claims filed last month and 98.6 percent more than last year. The valuation of permits for new housing construction in May was \$19.7 million, an 8.8 percent decrease from April and a 65.5 percent increase from one year ago.



TOLEDO	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	308.9	310.0	310.9	311.1	310.2	309.1	309.1	309.0	309.5	308.8	309.1	309.3	309.3	0.0%	0.1%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	2,561	1,879	1,864	1,811	1,635	1,941	1,882	1,928	4,575	1,971	1,790	1,749	5,087	190.9%	98.6%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$11.9	\$12.8	\$11.6	\$15.2	\$10.8	\$18.2	\$10.4	\$15.4	\$18.9	\$19.1	\$33.0	\$21.6	\$19.7	-8.8%	65.5%
Average Weekly Hours for Manufacturing* (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%

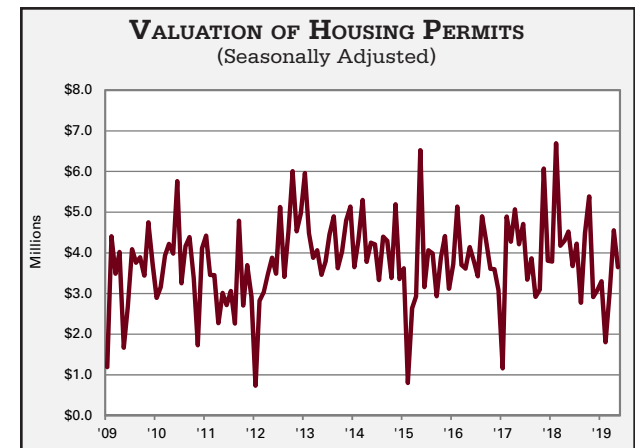
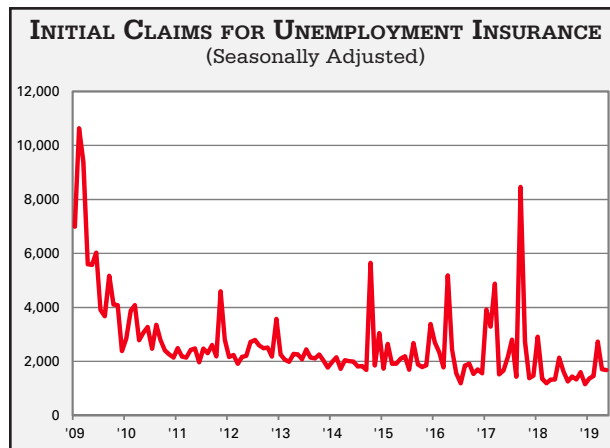
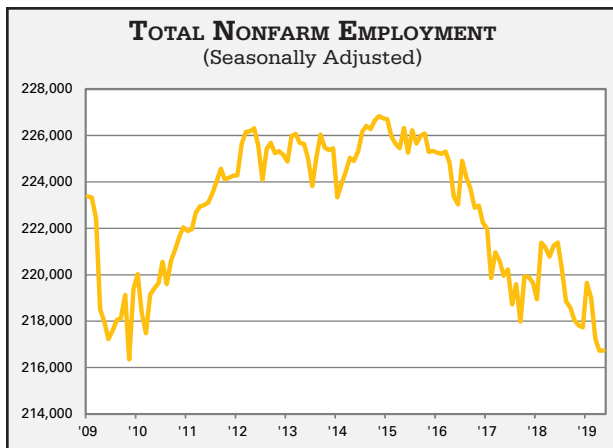
*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.

YOUNGSTOWN-WARREN-BOARDMAN METROPOLITAN STATISTICAL AREA

Mahoning and Trumbull Counties in Ohio and Mercer County in Pennsylvania

The leading indicator for the Youngstown-Warren-Boardman metropolitan area for May 2019 forecasts negative employment growth at an annual rate of -0.32 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 216,700 in May, unchanged from April.

The number of initial claims for unemployment insurance in May was 1,680 claims, 1.9 percent less than the number of claims filed last month and 25.6 percent more than last year. The valuation of permits for new housing construction in May was \$3.6 million, a 21.7 percent decrease from April and a 20.0 percent decrease from one year ago.



YOUNGSTOWN	May 2018	Jun 2018	Jul 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Percent Change	
														Month	Year
Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)	221.3	221.4	220.2	218.9	218.6	218.0	217.8	217.7	219.7	219.0	217.3	216.7	216.7	0.0%	-2.1%
Initial Claims for Unemployment Insurance (Seasonally Adjusted)	1,338	2,136	1,614	1,265	1,439	1,336	1,606	1,159	1,363	1,463	2,730	1,712	1,680	-1.9%	25.6%
Valuation of Housing Permits (Seasonally Adjusted in Millions)	\$4.5	\$3.7	\$4.2	\$2.8	\$4.5	\$5.4	\$2.9	\$3.1	\$3.3	\$1.8	\$3.1	\$4.6	\$3.6	-21.7%	-20.0%
Average Weekly Hours for Manufacturing* (Seasonally Adjusted)	41.8	42.2	42.1	42.1	42.6	42.6	42.8	42.9	42.4	41.9	41.5	41.5	41.2	-0.7%	-1.4%

*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.

OHIO METROPOLITAN STATISTICAL AREAS (MSAs)

Developed by the U.S. Office of Management and Budget, Metropolitan Statistical Areas are integrated geographic regions comprised of at least one city or urban area (with a population of at least 50,000) and adjacent communities. Metropolitan Statistical Areas make it possible for federal statistical agencies to utilize the same boundaries when publishing statistical data. These are definitions based on analysis of 2010 Census data.

- A. Akron:** Portage and Summit counties
- B. Canton-Massillon:** Carroll and Stark counties
- C. Cincinnati:** Brown, Butler, Clermont, Hamilton, and Warren counties in Ohio; Dearborn, Ohio, and Union counties in Indiana; Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton counties in Kentucky
- D. Cleveland-Elyria:** Cuyahoga, Geauga, Lake, Lorain, and Medina counties
- E. Columbus:** Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Morrow, Perry, Pickaway, and Union counties
- F. Dayton:** Greene, Miami, and Montgomery counties
- G. Huntington-Ashland:** Lawrence County in Ohio; Boyd and Greenup counties in Kentucky; Cabell, Lincoln, Putnam, and Wayne counties in West Virginia
- H. Lima:** Allen County
- I. Mansfield:** Richland County
- J. Springfield:** Clark County
- K. Toledo:** Fulton, Lucas, and Wood counties
- L. Weirton-Steubenville:** Jefferson County in Ohio; Brooke and Hancock counties in West Virginia
- M. Wheeling:** Belmont County in Ohio; Marshall and Ohio counties in West Virginia
- N. Youngstown-Warren-Boardman:** Mahoning and Trumbull counties in Ohio; Mercer County in Pennsylvania



TECHNICAL NOTES

The leading economic indicators for Ohio and the eight largest Metropolitan Statistical Areas (MSAs) are designed to anticipate changes in area economies. The Gross National Product is the accepted measure of economic activity at the national level, but there are no monthly measures of the dollar value of goods and services at the state and metropolitan levels. Instead, the Ohio leading indicators forecast the growth rates of total nonfarm employment for each area.

The leading indicators are generated with vector auto regression models using five inputs. The inputs are statistically significant predictors of Ohio total nonfarm growth rates at the 90 percent confidence level.

The five inputs are:

- U.S. Leading Indicator (Source: The Conference Board, <https://www.conference-board.org/data/bcicountry.cfm?cid=1>)
- U.S. Industrial Production in the Manufacturing Sector (Source: Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/IPMAN>)
- Unemployment Insurance Claims (Source: Ohio Department of Job and Family Services, <http://ohiolmi.com/uc/UCReports.htm>)
- Housing Valuations (Source: U.S. Census Bureau, <https://www.census.gov/construction/bps/>)
- Manufacturing Hours (Source: Current Employment Statistics program, <http://ohiolmi.com/ces/LMR.pdf>)

The models forecast growth rates for six time-horizons (one to six months); the published forecast is an annualized average of those forecasts. The models use rolling 120-month windows of data. Each month, a new month of data is added (the most current available) and the oldest month is dropped. This approach allows for possible structural changes in the economy over time. All data series are converted monthly growth rates using the first difference of the natural logarithms multiplied by 100. Seasonal adjustments are made within the models using the U.S. Census' X-13ARIMA-SEATS program; seasonally adjusted data from the leading indicator models will not match data from original sources.

The forecasting models for the Ohio leading indicators are 'real time' processes that do not build on previous forecasts. For this reason, the Ohio leading indicators should not be used as a time series. The models use data as they are available each month, including revisions to older data. For example, monthly data releases may be preliminary and later revised, other series are revised during annual 'benchmarking,' and occasionally a series may be reindexed to new time point. Some of these revisions could be substantial.

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- Partner with the workforce and economic development community.
- Develop and deploy new information solution tools and systems for the workforce and economic development community.
- Provide products and services that are customer- and demand-driven.
- Be known as an important and reliable source for information solutions that support workforce development goals and outcomes.

This periodical is published under the direction of Bureau Chief Coretta Pettway. For further information, visit <http://OhioLMI.com> or call the Ohio Bureau of Labor Market Information at **1-888-296-7541** option 6, or **(614) 752-9494**.

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